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EXAMINER

LAROSE, COLIN M

ART UNIT

PAPER NUMBER

2623

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,020

Applicant(s)

MAIER, THOMAS

Examiner

Colin M. LaRose

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
- Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Arguments and Amendments

1. Applicant's amendments and arguments filed 6 June 2005, have been entered and made of record.

Drawings

2. The drawings were received on 6 June 2005. These drawings are accepted.

Response to Amendments and Arguments

3. Applicant asserts (pp. 9-10 of Remarks) that Usami does not disclose "maintaining the geometry of the group of points" within the limits of an output color space projected in the perceived color space upon the transference of the group of points. Examiner respectfully disagrees. Usami teaches transferring an image in RGB into a perceptual Lab color space (S4, figure 6). After this conversion, the Lab color spaces values are compressed (S5) so that a conversion (S6) to an output RGB color space having a gamut different from that of the initial RGB space substantially maintains the geometry of the group of points in the initial RGB space. That is, the compression of the points in the Lab space effectively compensates for the differences in the two different RGB gamuts and allows the points represented in the output RGB color space to be faithfully represented according to the original RGB color values, thereby preserving the "geometry" of the group of points.
4. Another valid interpretation of the claim interprets "the geometry of the group of points" as merely the geometry of the *pixels* rather than the geometry of color points in a color space.

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The claim does not make it clear that the geometry of the group of points refers to the spatial relationships among colors in a color space rather than the relationship among pixels of an image represented in a given color space. In other words, when a 300 x 300 pixel image is transferred from a first RGB → Lab → a second RGB, the geometry of the group of points (i.e. the pixels) has not changed – the image is still 300 x 300 pixels. The claim language should be clarified so as to preclude such a reading of the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,748,342 by Usami.

Regarding claim 1, Usami discloses a method of adapting image information to the perceptive capacity of the human eye, as well as to the capabilities of a printer, having the following steps:

displaying lightness values and colorimetric values or chromaticity steps from an original image as a group of points in an initial color space (figure 20: “original” is a display of the group of points of an original image in an initial color space, RGB);

transferring the group of points into a physiologically substantially equal-spaced perceived color space while maintaining the geometry of the group of points within the limits of

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an output color space projected into the perceived color space (figure 6: at S4, the RGB values of the original image are transferred to $L^*a^*b^*$ color space, which is an “equal-spaced perceived color space”; then, color space compression is carried out at S5, wherein the geometry of the group of points in the $L^*a^*b^*$ color space is maintained within the limits of an output color space (e.g. RGB for a printer) projected into the perceived color space $L^*a^*b^* \rightarrow$ as shown in figures 2A and 2B, the gamut of a printer 22 is smaller than that of a monitor 21, so the points outside the printer’s gamut must be compressed in order to print accurate colors; in compressing the outlier points of the $L^*a^*b^*$ image, the relative geometry of the original group of points is maintained to the extent that is possible in order to convert colors of the input image into colors of the output image that are similar in appearance (see column 4, lines 7-23))

transforming the group of points from the perceived color space into the output color space by using the transformation equations existing between the perceived color space and the output color space (figure 6: at S6, the $L^*a^*b^*$ values are transferred to RGB values using the standard transformation equations);

displaying an image with lightness values and colorimetric values or chromaticity steps in accordance with the group of points contained in the output color space (figure 20: two “preview” images, which were formed via the gamut-compression process, are displayed in the output color space RGB).

Regarding claim 2, Usami discloses that the perceived color space is a CIE- $L^*a^*b^*$ or a CIE-LUV color space (Usami’s perceived color space is $L^*a^*b^*$ -- see figure 6).

Regarding claims 3 and 4, Usami discloses that the group of points in the perceived space within the limits of the output color space projected into the perceived color space is subjected to

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a similarity projection (figures 2A and 2B: the image points outside the printer's gamut 22 are projected onto the outer limits of the printer's gamut so that they are substantially similar in appearance or exhibit minimal change in appearance).

Regarding claims 5 and 6, Usami discloses the group of points in the perceived color space is expanded as far as the limits of the output color space projected into the perceived color space (figure 2A and 2B: the outlier points (i.e. the points outside the printer's gamut 22) in the $L^*a^*b^*$ space, after color space compression, have been expanded to the limits of the printer's gamut – and after conversion to RGB, the points represent the outer limits of the printer gamut in the output color space RGB).

Regarding claims 7-10, Usami discloses the position and/or the orientation of the group of points in the perceived color space is changed (see figures 2A, 2B, 4, and 8: the position of the outlier points of the image, when represented in $L^*a^*b^*$ color space, are changed to conform to the gamut of the printer).

Regarding claims 11-20, Usami discloses that, in the event of a linear group of points, these are projected onto another line while maintaining the relative color distances between individual image points in the perceived space (figure 4B shows that, in the color space compression process, the points on the color plane outside the printer's gamut 22 are moved inward towards the origin so that they then lie on the outer edge of the printer's gamut; this ensures that the groups of outlier points remain substantially equally spaced when changed to coincide with the printer's gamut).

Suggested Amendments

7. Claim 1 would distinguish from Usami if amended to clearly indicate

(1) that the claimed “group of points” refers to color points within a color space rather than e.g. pixels within an image, and that the claimed “geometry of the group of points” refers to the spatial relationship between color points within a color space rather than e.g. the spatial relationship between pixels in an image; and

(2) that the transferring of the group of points from the initial color space to the physiologically substantially equal-spaced perceived color space causes the spatial relationship between corresponding color points in the two color spaces to be constant or unchanged.

The reasons for these changes are as follows:

The first change would preclude a reading of the claim whereby the group of points corresponds to pixels since virtually every conversion between color spaces maintains the geometry of pixels as described above in paragraph 3.

The second change would clearly define what the Examiner believes is meant by “geometry” and would distinguish the claim from Usami, since Usami discloses the conventional conversion between RGB and Lab, which modifies the spatial relationship between color space points due to the different geometries of the RGB and Lab gamuts.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colin M. LaRose whose telephone number is (571) 272-7423. If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, Jingge Wu, can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600 Customer Service Office whose telephone number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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CML

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9 September 2005

A handwritten signature in black ink, appearing to be 'Vikram Bali', written in a cursive style.

VIKKRAM BALI
PRIMARY EXAMINER